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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/963,906	09/25/2001	Yury Shapiro	07066-066001	1120

22434 7590 10/19/2004  
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EXAMINER

CHAWAN, SHEELA C

ART UNIT PAPER NUMBER

2625

DATE MAILED: 10/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/963,906	<b>Applicant(s)</b> SHAPIRO ET AL.	
	<b>Examiner</b> Sheela C Chawan	<b>Art Unit</b> 2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 25 September 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 September 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>2/14/02, 9/4/02, 2/10/03, 9/12/03</u> . | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Drawings***

1. The Examiner has approved drawings filed on 9/25/01.

***Oath/Declaration***

2. The oath or declaration is defective because: The inventor signature is missing.

***Claim Rejections - 35 U.S.C § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3 - 4, 6 -11, 17-26 are rejected under 35 U.S.C. 102(e) as being anticipated by Brownlee (US.6, 292,576 B1, Listed in the IDS, September 15, 2003).

As to claim 1, Brownlee discloses an imaging device (fig 1, 113, column 3, lines 11- 14, 29- 36) comprising:

an optical plate (fig 1, 103) made of an optically transparent material (column 2, lines 34- 35, fig 1, 103, column 3, lines 9-18) and forming a surface to receive a finger (finger is placed on a transparent platen having a prism or micro prism array attached to it and the finger surface is in contact with optical plate, column 2, lines 64- 65);

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first light source (fig 1, 105) positioned to illuminate the finger receiving surface (column 2, lines 35 - 40);

an imaging system (fig 1, 113, electronic imaging device) positioned to receive light collected from the finger receiving surface and to form an image of a fingerprint pattern of a finger on the finger receiving surface (column 2, lines 35- 40, column 3, lines 30-36); and

a second light source (fig 1, 107, column 2, lines 40-57) to direct a light beam to the finger receiving surface to determine whether an object on the finger receiving surface is real or fake (column 2, lines 40-57, column 2, line 67 to column 3, line 8).

As to claim 3, Brownlee discloses the device wherein the light beam from the second light source (fig 1,107) has central axis that is inclined at an angle from normal relative to the finger receiving surface (fig 8b, element 804, column 3, lines 1-8).

As to claim 4, Brownlee discloses the device of which an image area of the light beam from the second light source is substantially less than the surface area of the finger receiving surface (column 5, lines 34 – 38, small sample of the fingerprint image area broadly corresponds to a substantially less or small area of the finger receiving surface, column 7, lines 42- 46).

As to claim 6, Brownlee discloses the device in which the second light source is selected from the group consisting of a light- emitting diode, a laser and a laser diode (column 3, lines 22-34).

As to claim 7, Brownlee discloses the device in which the optical plate has a second surface parallel to the finger receiving surface (fig 1, bottom surface of prism

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103 is the second surface which is parallel to top surface of prism 103), the second light source being located below the second surface of the optical plate (fig 1, element 105 is located under the optical plate 103).

As to claim 8, Brownlee discloses the device in which the first light source (fig 1, 105, first light source) is positioned at the second surface of the optical plate (fig 1, bottom side of prism 103 corresponds to a second surface).

As to claim 9, Brownlee discloses the device further including a reflective surface positioned at a third surface of the optical plate to collect light from the finger receiving surface and to focus the collected light on the imaging system (fig 1, inclined surface of prism 103 corresponds to a third surface).

As to claim 10, Brownlee discloses the device in which the imaging system is positioned at a fourth surface of the optical plate (fig1, left inclined side or lateral side of prism 103 corresponds to fourth surface).

As to claim 11, Brownlee discloses the device in which the reflective surface is a converging mirror, a diverging mirror or an array of microreflectors (column 6, lines 31-39).

As to claim 17, claim 17, recites similar limitation as claim 1 above and similarly analyzed. Brownlee teaches an imaging system (fig 1, 113, column 3, lines 11- 14, 29-36) positioned to receive light from the finger receiving surface and to form an image of a fingerprint pattern finger on the finger receiving surface (column 2, lines 34- 40), the imaging system configured (column 3, lines 21- 25, column 4, line 63 through column 4, line 6), and operable to locate the position of the image formed by the second light

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source (fig 1, 107) along an axis the finger receiving surface and to compare that position to a predetermined reference value determine whether an object on the finger receiving surface is real or fake ( column 2, lines 40 - 62).

As to claims 18 and 26, Brownlee discloses the device wherein the predetermined reference value is stored in memory (column 8, lines 18-20; a sum of threshold value is a predetermined reference value; see also column 9, lines 23-26) and is the position of an image formed along the axis of the finger receiving surface by a real finger, and further including a predetermined offset value (a difference between the two captured images and the sum of threshold value provides a offset value as shown in step 511 of figure 5 and explained at column 8, lines 18-26) stored in memory that is the approximate difference between the predetermined reference value and the position of an image formed along the axis of the finger receiving surface by a fake or false finger (column 8, lines 18-26 ).

As to claim 19, Brownlee discloses the device wherein the imaging system further includes a processor to compare the predetermined reference value to the position of the image formed by the second light source along the axis of the finger receiving surface to generate a measured offset value that is compared to the predetermined offset value to determine whether the object on the finger receiving surface is real or false (in figure 5, at step 511, predetermined reference value is defined by sum of threshold value, measured offset value is obtained by comparing the first image data with the second image data in step 509 and the real or false finger is determined as explained in column 8, lines 18-26).

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For claim 20, see the rejection of claim 17 above.

As to claim 21, Brownlee discloses the device wherein the imaging system (fig 1, 113, column 3, lines 11- 14, 29- 36) is configured and operable to form an image of a fingerprint pattern of a finger on the finger receiving surface (column 3, lines 21-25, column 4, line 63 through column 4, line 6).

For claim 22, see the rejection of claim 17 above.

As to claim 23, Brownlee discloses a method of imaging a fingerprint (fig 1, 113, column 3, lines 11- 14, 29- 36), the method comprising:

receiving an object at a finger receiving surface of an optical plate (fig 1, 103) made of an optically transparent material ( column 2, lines 34- 35, column 3, lines 47- 50);

illuminating the finger receiving surface with a light source to form an image of limited size at or near the finger receiving surface (column 2, lines 35- 37, column 3, lines 45- 50, column 5, lines 34 - 44);

collecting light from the finger receiving surface (column 5, lines 52-55); and

receiving the collected light at an imaging system (fig 1, 113 imaging system corresponds to electronic imaging device) to locate the position of the image along an axis of the finger receiving surface and to compare it to a predetermined reference value to determine whether the object on the finger receiving surface is a real or fake (column 5, lines 34 through column 6, line 28).

As to claim 24, claim 24, recites similar limitation as claim 23 above and similarly analyzed. Brownlee teaches a method of imaging a fingerprint (fig 1, 113, column 3,

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lines 11- 14, 29- 36) if the object on the finger receiving surface is determined to be real (column 2, lines 34 - 51), turning off the first light source and turning on a second light source to illuminate the finger receiving surface (two different light source are used in this process in order for the first light to be turn off, the second light should be turn on or vise versa for the process to work because the resultant images are obtained from this process by using each light source individually. The two light sources may be operated sequentially see, column 3, line 63 through column 4, line 3, column 4, and lines 17- 19).

As to claim 25, Brownlee discloses the method of preventing processing the image of the fingerprint pattern if the object is found to be fake (fig 5, step 517 and 519).

***Claim Rejections – 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to



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consider the applicability of 35 U.S.C. 103(a) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 5 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brownlee (US.6,292,576 B1, Listed in the IDS, September 15, 2003).

As to claims 5 and 27, Brownlee discloses the fingerprint imaging device (figure 1). Although Brownlee does not specifically disclose that the diameter of the image area is between about one and three millimeters, such limitations are merely a matter of design choice and would have been obvious in the device of Brownlee. Brownlee teaches that the authenticity check may be performed on a small sample area of the fingerprint instead of the entire fingerprint to reduce the computational requirements and/or optical or mechanical complexity of the system. The limitation in claim 5 does not define a patentably distinct invention over that in Brownlee since both the invention as a whole and Brownlee are directed to use a small sample area in order to greatly reduce the computational requirements. Therefore, lacking any criticality, it would have been obvious to a person skill in the art to include diameter of the image area between about one and three millimeters into the device of Brownlee would have been a matter of obvious design choice.

5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brownlee (US.6,292,576 B1), as applied to claims 1, 3 - 11, 17- 27 above and further in view of Lapsley et al., (US.5,737,439).

Brownlee discloses a method and apparatus for distinguishing a human finger from a reproduction of a fingerprint. Brownlee does not disclose expressly device

wherein the light beam from the second light source has a central axis that is normal to the finger receiving surface.

Lapsley discloses an anti-fraud biometric scanner that determines whether an object exhibits characteristics of blood flow consistent with that of a live human (fig 7, 403 corresponds to second light source has a central axis that is normal to the finger receiving surface, column 7, lines 31- 40).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Brownlee to include the light beam from the second light source has a central axis that is normal to the finger receiving surface. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Brownlee by the teaching of Lapsley because security is provided with minimum inconvenience to the user. No additional steps are required on the part of the user to prove his or her authenticity, nor is the time required to complete a biometric scan appreciably increased (as suggested by Lapsley at column 3, lines 9 – 13).

6. Claims 12 -16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brownlee (US.6,292,576 B1), as applied to claims 1- 11, 17-26, above and further in view of Hebert (US.5,596,454).

Regarding claim 12, Brownlee discloses a method and apparatus for distinguishing a human finger from a reproduction of a fingerprint. Brownlee does not disclose expressly an aperture at a second surface of the optical plate; an objective at the aperture; a detector to receive light collected by the aperture and the objective.

Hebert discloses an uneven surface image transferring apparatus of a fingerprint from a finger platen to an image detection device while preserving geometric fidelity.

The system comprises of:

an aperture at a second surface of the optical plate (column 2, lines 4- 21, column 7, lines 25- 62);

an objective at the aperture (column 5, lines 46-65);

a detector to receive light collected by the aperture and the objective (column 5, lines 44-65, column 7, lines 4-24).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Brownlee to include an aperture at a second surface of the optical plate, an objective at the aperture, a detector to receive light collected by the aperture and the objective. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Brownlee by the teaching of Hebert in order to reduce or eliminate geometric distortion and astigmatism at the image sensing device (as suggested by Hebert at column 2, lines 25 – 28).

As to claim 13, Brownlee discloses the device in which the imaging system (fig 1, 113, electronic imaging device corresponds to imaging system) comprises a reflective surface positioned (fig 1, 103) between the objective (fig 1, 111) and the detector (fig 1, 113 corresponds to detector) for collecting light from the objective and for focusing the light onto the detector (column 3, lines 9-35).

As to claim 14, Brownlee discloses the device in which the detector comprises a CCD (column 3, lines 30-32).

As to claim 15, Brownlee discloses the device in which the detector comprises a CMOS sensor (column 3, lines 33-36).

As to claim 16, Hebert discloses the device in which the aperture defines an aperture beam of light rays used by the detector (column 7, lines 35- 49).

***Other prior art cited***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Marcus et al., (US.5,736,734) discloses liquid platen fingerprint image enhancement.

Borza (US.5,920,384) discloses optical imaging device.

Maase et al., (US.5,650,842) discloses device and method for obtaining a plain image of multiple fingerprints.

Schneider et al., (US.5,456,256) discloses high resolution ultrasonic imaging apparatus and method.

Chen et al., (US.5,448,649) discloses apparatus for imaging fingerprint or topographic relief pattern on the surface of an object.

***Contact Information***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sheela C Chawan whose telephone number is 703-305- 4876. The examiner can normally be reached on Monday - Thursday 8 - 6.30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on 703-308-5246. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*SCC*  
Sheela Chawan  
Patent Examiner  
Group Art Unit 2625  
October 9, 2004